REMARKS

The present application is directed to methods of cloning genes using replication-deficient baculovirus vectors. Prior to this Amendment and Response, Claims 27-34 were pending. In the present Amendment and Response, Applicants amend Claim 27. The amendments do not introduce any new matter. Upon entry of the present amendment, Claims 27-34 will be pending.

Summary of Record of Interview on June 12, 2007

Applicants and Applicants' representatives (Dr. Lena Polovnikova and Dr. John McDonald) appreciate the personal and constructive interview with Examiner Dr. Maria Marvich and Supervisory Examiner Dr. Joseph Woitech on June 12, 2007. The outstanding rejections of Claims 27-30 under 35 U.S.C. § 102(e), and of Claims 31-34 under 35 U.S.C. § 103 were discussed. Agreement was reached as to an amendment to independent Claim 27 that would make this claim and its dependent claims, 28-34, allowable. Applicants herein amend Claim 27, as discussed during the interview, to clarify that in element iii the replication-deficient baculovirus vector is circular. Applicants also refer to previously filed responses (e.g., May 15, 2006, January 26, 2005) and the pre appeal brief (November 9, 2006) to indicate the differences between Campos et al. (U.S. Patent No. 6,911,206, hereinafter Campos), Merrington, and Applicants' invention, as claimed. Applicants also provide herein a Summary Table to efficiently present these differences.

Claim Rejections under 35 U.S.C. §102(e)

Claims 27-30 are rejected under 35 U.S.C. §102(e) as anticipated by Campos. Campos does not disclose a circular, replication-deficient baculovirus vector as claimed by Applicants.

In summary, the following points are made regarding Campos:

A. Campos, discloses a replication-deficient viral DNA that is linearized before recombination, and is sold in linearized form, so that the user does not perform the linearization step;

B. Campos only teaches the use of baculovirus BacPAK DNA, which is linearized by its commercial supplier, Clontech, and is therefore linear and not circular before recombination with the rescue or transfer vector in the insect cells;

C. Campos does not teach and could not be interpreted to teach or suggest recombination of the naked, circular, replication-deficient baculovirus vector recited in the pending claims;

D. Campos contains ample evidence that it uses BacPAK baculovirus DNA;

1. Teaches the use of the Clontech BacPAK system in all specific examples of baculovirus expression,

2. In Column 20, lines 10-14, examples of transfer vectors are pBacPAK8 and pBacPAK9 (Clontech), or pBAK-based fusion vector,

3. In Column 33, Example 4, the transfer vector used to place the foreign coding regions under control of the polyhedrin gene promoter is pBacPAK9 (Clontech),

4. In Column 33, Example 4, Campos uses the replication-deficient virus DNA that contains "homologous flanking viral sequences present in pBacPAK9",

5. The replication-deficient virus DNA in Campos is BacPAK baculovirus DNA;

E. Clontech provides BacPAK baculovirus DNA in a linearized form. Applicants previously submitted evidence to that effect. Please see Exhibit A to "Amendment and Response to Office Action" filed May 15, 2006;

F. BacPAK recombination sequences in the transfer vector are employed to transfer the gene expression cassette from pBacPAK-based transfer vectors into BacPAK baculovirus DNA;

G. BacPAK recombination sequences are present in the pBacPAK9-based transfer vector in Campos precisely so that the vector could recombine with BacPAK baculovirus DNA, also containing these BacPAK recombination sequences;

H. Thus, the baculovirus DNA in Campos is BacPAK, and BacPAK baculovirus DNA is linearized before recombination; and,

I. The reason that Campos does not teach digesting DNA prior to recombination is because BacPAK baculovirus DNA has already been digested by its commercial supplier for the use in protocol described in Campos. Thus, lack of teaching of the linearization step in Campos supports the conclusion that the baculovirus DNA is linearized BacPAK DNA.

Accordingly, Campos does not anticipate the pending claims that recite a circular, replication-deficient, baculovirus vector. Applicants respectfully request withdrawal of the rejection of Claims 27-30 under 35 U.S.C. §102(e).

Claim Rejections under 35 U.S.C. §103(a)

Claims 31-34 are rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 6,911,206 to Campos et al. in view of Merrington et al., Virology, v. 217, pp. 338-348 (1996).

Applicants respectfully traverse this rejection. The publications do not render Claims 31-34 obvious, at least because the pending claims recite a circular, replication-deficient vector (see comments in the section above concerning §102(e) and Campos). Applicants' amendment to Claim 27, element iii, clarifies that this replication deficient baculovirus vector is circular. The cited references, alone or in combination, do not teach, suggest or provide motivation to use a circular,

replication-deficient vector. Thus, the references, alone or in combination, do not teach or suggest all elements of the pending claims and do not render them obvious. Applicants respectfully request withdrawal of the rejection of Claims 31-34 under 35 U.S.C. §103.

Campos

Campos has been discussed in the previous section regarding §102(e) and in previously filed responses. For at least the reasons recited above, Campos only teaches the use of BacPAK (linearized DNA) and could not be interpreted to include the naked, circular, replication-deficient baculovirus vector recited in Applicants' claims. Accordingly, Applicants assert that Campos, alone or in combination with Merrington does not teach, suggest, or provide motivation to derive the naked circular replication-deficient vector used in the claimed method. Applicants respectfully assert that the rejection of rejection of Claims 31-34 under 35 U.S.C. §103(a) has been overcome and request its withdrawal.

Merrington

The Examiner asserts that Merrington teaches a lef-2 mutation can be rescued by co-transfection of unmodified lef-2. The vector in Merrington shows significant rates of replication (see Figure 5) and is therefore not replication-deficient as recited in the pending claims. The inventors of the present application are co-authors of Merrington and consequently are familiar with its contents. The experimental data in Merrington show that the virus still produces over 5 million infectious particles per ml of cell culture medium. In contrast, in the present invention, the replication deficient virus produces no infectious progeny unless rescued by a transfer vector. Since the vector in Merrington shows significant rates of replication and is not replication deficient, as claimed, Applicants respectfully assert that Merrington, alone or in combination with Campos, does not render the present invention obvious.

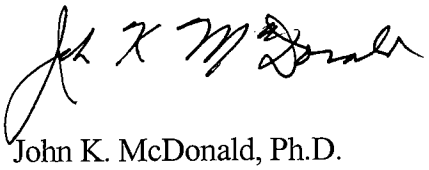
In view of the foregoing comments, applicants respectfully assert that the claimed invention is patentable in view of the cited references. Applicants believe the rejection of Claims 31-34 under 35 U.S.C. §103(a) has been overcome and request its withdrawal.

Present Invention as Claimed and Comments	**Campos and Comments**
A method of cloning a gene	Cloning a fusion protein
providing naked ***circular*** baculovirus vector	The Example is completely absent in information about the "replication deficient baculovirus DNA" ***There is no indication to suggest circular.*** The only examples given of transfer vectors are pBacPAK8 & 9. This strongly suggests that, as you would expect to use a complementary baculovirus vector, that the baculovirus vector used is pBacPAK6, a ***linear vector*** from the same company (Clontech). ***Linear*** DNA cannot be used in a one step transfection protocol
replication ***deficient*** The current invention is replication deficient and does not require this such plaque assay purification	It is highly likely that the vector ***was not replication deficient*** Example 4 shows that repeated cycles of recombinant vector grown in Sf21. "Repeated cycles of Sf21 cell infection and plaque assay purification can be performed to obtain a *greater concentration*". This would only be needed if the vector is **not replication deficient.** Such plaque purification reduces the amount of non-recombined vector not having the gene of interest, but still being able to replicate. Applicants' invention is replication deficient and does not require this plaque assay purification
growing the replication enabled vector in a suitable invertebrate cell	Grown in Sf21 Cells: Campos requires plaque purification assays to purify recombined vector, which is not required in Applicants invention

CONCLUSION

Applicants respectfully submit that this is a complete response to the Office Action dated February 21, 2007. Applicants respectfully assert that the claims are now in condition for allowance and request that the application be passed to issuance. If the Examiner believes that any informalities that may be corrected by Examiner's amendment remain in the case, or if there are any other issues which can be resolved by a telephone interview, a telephone call to the undersigned attorney at (404) 745-2470 or Dr. Lena Polovnikova at (404) 815-6102 is respectfully solicited.

Respectfully submitted,



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